

Re: should space shuttle be cancelled?

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- *From:* Joann Evans <bondage@xxxxxxxxxxxxxxxx>
 - *Date:* Sat, 06 Aug 2005 03:49:18 GMT
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Cardman wrote:

>
> On Wed, 03 Aug 2005 01:54:31 GMT, Joann Evans
> <bondage@xxxxxxxxxxxxxxxx> wrote:
>
> >The biggest flaw is being a vehicle that even *needs* a crew escape
> >system.
>
> True, but rocket launches are considerably more dangerous than
> aviation. Ignoring this current fact would be unhelpful.

Tell me why this is necessairily so?

> > We only do this in aircraft where some outside force may actively be
> >trying to destroy you. (fighters and bombers) Almost everything else is
> >sufficently robust that we don't consider it, we expect 'intact abort'
> >in virtually all cases.
>
> Maybe you have not noticed, but in the case of both Challenger and
> Columbia, they were both destroyed by outside forces. So the very
> environment that they are in is the thing that is trying to destroy
> them.

What anti-aircraft weapon destroyed either ship?

Challenger was lost because of a failure of its own SRB. (Unless you consider a cold morning to be an outside force. If so, it was absolutely not an unknown one. Neither were potential leakage issues at the joints.)

Columbia was lost because a piece of the ET insulation damaged a critical part of the TPS. This wasn't a lightning strike (and even Apollo 12 survived one of those)

By your 'environment' definition, we should eject every time the weather gets bad. Weather has certainly destroyed aircraft, as recently as the other day in Toronto. (and all survived without a 'crew escape

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system,' unless you count the inflatable slides...one of which didn't work, and those at that exit merely jumped)

- > Now had the Shuttle came with an escape system built in, then both of
- > these crews may have survived. I am thinking of a detachable cockpit
- > that forms into a crude craft.

Those have typically not worked well in aircraft, either.

- > Certainly the case of the CEV is a whole different safety concern,
- > where simply mounting this craft on top provides a huge advantage over
- > the Shuttle.
- >
- > That rocket goes and does it's worst during flight, then with only a
- > little luck they should survive with only getting a little cooked. I
- > can only say that it would be helpful if the CEV could detach itself,
- > should the rocket go way off course. Like straight down.

I prefer a vehicle robust enough that it's no more likely to have a catastrophic failure than a commercial aircraft.

And as the shuttle doesn't pull more than 3 gees, and fighters typically do much more, it's clear that, at least in terms of acceleration, we know plenty about building to withstand the 'worst.'

All this proves is that the *shuttle* is a fragile design. Nothing says all orbital spacecraft designs must also be so.

- > Anyway, it would simply be wrong to ignore that launching and reentry
- > does carry a high level of risk.

The degree of risk depends entirely on vehicle design. One can easily have winged or (preferably, at least to me) semi-ballistic vehicles that have less loading and heating on their entry surfaces. Low enough that metals, rather than ceramics can be used.

- > Ignoring it won't make it go away,
- > which is why they should certainly plan for what can go wrong.

It won't go away, but there are ways of addressing it that aren't like the shuttle.

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You know what to remove, to reply....

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◇ From: Cardman

- **References:**

- ◆ **should space shuttle be cancelled?**
◇ From: John Thingstad
- ◆ **Re: should space shuttle be cancelled?**
◇ From: Henk Boonsma
- ◆ **Re: should space shuttle be cancelled?**
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